

Appendix 3A-6: Water Year 2007–2011 Annual Total Phosphorus Criteria Compliance Assessment

Florida Department of Environmental Protection¹

¹ Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Environmental Assessment and Support Program, Tallahassee, FL

Table 1. Annual total phosphorus criteria compliance assessment for the five-year period from Water Years 2007–2011 (May 1, 2006–April 30, 2011).

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
Refuge	Impacted	2007	LOXA101	3	N/A (7.6)	N/A					
	Impacted	2007	LOXA105	2	N/A (14.7)	N/A					
	Impacted	2007	LOXA124	4	N/A (9.8)	N/A					
	Impacted	2007	LOXA130	4	N/A (8.7)	N/A					
	Impacted	2007	LOXA137	4	N/A (7.6)	N/A					
	Impacted	2007	LOXA140	2	N/A (7)	N/A					
	Impacted	2007	X1	7	31.8	Fail					
	Impacted	2007	Z1	9	35.9	Fail					
	Impacted	2007	Annual Network Average					33.9	Fail		
	Impacted	2008	LOXA101	9	14.0	Pass					
	Impacted	2008	LOXA105	9	14.9	Pass					
	Impacted	2008	LOXA124	10	13.0	Pass					
	Impacted	2008	LOXA130	11	11.1	Pass					
	Impacted	2008	LOXA137	11	9.4	Pass					
	Impacted	2008	LOXA140	8	7.8	Pass					
	Impacted	2008	X1	7	56.5	Fail					
	Impacted	2008	Z1	7	62.1	Fail					
	Impacted	2008	Annual Network Average					23.6	Fail		
	Impacted	2009	LOXA101	8	9.6	Pass					
	Impacted	2009	LOXA105	9	11.5	Pass					
	Impacted	2009	LOXA124	9	13.0	Pass					
	Impacted	2009	LOXA130	10	9.7	Pass					
	Impacted	2009	LOXA137	9	9.7	Pass					
	Impacted	2009	LOXA140	8	8.4	Pass					
	Impacted	2009	X1	10	61.0	Fail					
	Impacted	2009	Z1	12	27.8	Fail					
	Impacted	2009	Annual Network Average					18.8	Fail		
	Impacted	2010	LOXA101	11	13.0	Pass					
	Impacted	2010	LOXA105	11	12.1	Pass					
	Impacted	2010	LOXA124	11	12.5	Pass					
	Impacted	2010	LOXA130	11	10.3	Pass					

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
Refuge	Impacted	2010	LOXA137	11	10.7	Pass					
	Impacted	2010	LOXA140	11	10.8	Pass					
	Impacted	2010	X1	11	35.2	Fail					
	Impacted	2010	Z1	11	24.7	Fail					
	Impacted	2010	Annual Network Average					16.1	Fail		
	Impacted	2011	LOXA101	6	11.1	Pass					
	Impacted	2011	LOXA105	9	13.1	Pass					
	Impacted	2011	LOXA124	10	9.8	Pass					
	Impacted	2011	LOXA130	10	10.3	Pass					
	Impacted	2011	LOXA137	10	10.8	Pass					
	Impacted	2011	LOXA140	7	8.9	Pass					
	Impacted	2011	X1	11	26.7	Fail					
	Impacted	2011	Z1	12	32.8	Fail					
	Impacted	2011	Annual Network Average					15.4	Fail		
	Impacted	2007-2011	Five-Year Network Average							19.4	Fail
	Unimpacted	2007	LOX10	8	7.4	Pass					
	Unimpacted	2007	LOX11	10	6.6	Pass					
	Unimpacted	2007	LOX12	12	7.1	Pass					
	Unimpacted	2007	LOX13	10	7.3	Pass					
	Unimpacted	2007	LOX14	11	7.1	Pass					
	Unimpacted	2007	LOX15	11	7.3	Pass					
	Unimpacted	2007	LOX16	11	6.7	Pass					
	Unimpacted	2007	LOX3	4	N/A (10.4)	N/A					
	Unimpacted	2007	LOX4	8	9.7	Pass					
	Unimpacted	2007	LOX5	5	N/A (8.8)	N/A					
	Unimpacted	2007	LOX6	10	6.8	Pass					
	Unimpacted	2007	LOX7	10	8.8	Pass					
	Unimpacted	2007	LOX8	11	9.4	Pass					
	Unimpacted	2007	LOX9	7	7.8	Pass					
	Unimpacted	2007	X4	12	12.2	Pass					
	Unimpacted	2007	LOXA108	1	N/A (8)	N/A					
	Unimpacted	2007	Annual Network Average					8.0	Pass		
Unimpacted	2008	LOX10	9	8.3	Pass						
Unimpacted	2008	LOX11	11	7.4	Pass						

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail		
Refuge	Unimpacted	2008	LOX12	10	7.8	Pass						
	Unimpacted	2008	LOX13	10	7.2	Pass						
	Unimpacted	2008	LOX14	11	6.9	Pass						
	Unimpacted	2008	LOX15	10	7.5	Pass						
	Unimpacted	2008	LOX16	10	7.6	Pass						
	Unimpacted	2008	LOX3	10	8.7	Pass						
	Unimpacted	2008	LOX4	10	9.6	Pass						
	Unimpacted	2008	LOX5	10	7.9	Pass						
	Unimpacted	2008	LOX6	10	5.6	Pass						
	Unimpacted	2008	LOX7	10	7.8	Pass						
	Unimpacted	2008	LOX8	11	10.1	Pass						
	Unimpacted	2008	LOX9	10	8.0	Pass						
	Unimpacted	2008	X4	11	13.3	Pass						
	Unimpacted	2008	LOXA108	8	8.0	Pass						
		Unimpacted	2008	Annual Network Average					8.2	Pass		
	Unimpacted	2009	LOX10	8	8.0	Pass						
	Unimpacted	2009	LOX11	12	6.7	Pass						
	Unimpacted	2009	LOX12	12	6.8	Pass						
	Unimpacted	2009	LOX13	12	7.0	Pass						
	Unimpacted	2009	LOX14	12	6.4	Pass						
	Unimpacted	2009	LOX15	12	6.8	Pass						
	Unimpacted	2009	LOX16	12	7.7	Pass						
	Unimpacted	2009	LOX3	7	8.4	Pass						
	Unimpacted	2009	LOX4	8	9.5	Pass						
	Unimpacted	2009	LOX5	7	7.5	Pass						
	Unimpacted	2009	LOX6	10	7.6	Pass						
	Unimpacted	2009	LOX7	12	8.4	Pass						
	Unimpacted	2009	LOX8	12	11.3	Pass						
	Unimpacted	2009	LOX9	8	5.4	Pass						
	Unimpacted	2009	X4	11	11.4	Pass						
	Unimpacted	2009	LOXA108	8	9.3	Pass						
		Unimpacted	2009	Annual Network Average					8.0	Pass		
Unimpacted	2010	LOX10	11	6.7	Pass							
Unimpacted	2010	LOX11	11	6.2	Pass							

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail		
Refuge	Unimpacted	2010	LOX12	12	8.3	Pass						
	Unimpacted	2010	LOX13	11	6.3	Pass						
	Unimpacted	2010	LOX14	11	6.6	Pass						
	Unimpacted	2010	LOX15	11	6.6	Pass						
	Unimpacted	2010	LOX16	11	7.2	Pass						
	Unimpacted	2010	LOX3	9	8.1	Pass						
	Unimpacted	2010	LOX4	11	10.2	Pass						
	Unimpacted	2010	LOX5	9	7.7	Pass						
	Unimpacted	2010	LOX6	11	5.2	Pass						
	Unimpacted	2010	LOX7	11	7.5	Pass						
	Unimpacted	2010	LOX8	11	9.8	Pass						
	Unimpacted	2010	LOX9	11	6.6	Pass						
	Unimpacted	2010	X4	11	8.9	Pass						
	Unimpacted	2010	LOXA108	11	8.0	Pass						
		Unimpacted	2010	Annual Network Average					7.5	Pass		
	Unimpacted	2011	LOX10	8	5.7	Pass						
	Unimpacted	2011	LOX11	12	6.0	Pass						
	Unimpacted	2011	LOX12	12	6.4	Pass						
	Unimpacted	2011	LOX13	11	5.8	Pass						
	Unimpacted	2011	LOX14	12	6.0	Pass						
	Unimpacted	2011	LOX15	12	6.1	Pass						
	Unimpacted	2011	LOX16	12	7.3	Pass						
	Unimpacted	2011	LOX3	7	6.3	Pass						
	Unimpacted	2011	LOX4	8	9.5	Pass						
	Unimpacted	2011	LOX5	7	7.0	Pass						
	Unimpacted	2011	LOX6	10	5.8	Pass						
	Unimpacted	2011	LOX7	10	6.3	Pass						
	Unimpacted	2011	LOX8	11	8.2	Pass						
	Unimpacted	2011	LOX9	8	5.1	Pass						
	Unimpacted	2011	X4	11	10.2	Pass						
Unimpacted	2011	LOXA108	7	6.4	Pass							
	Unimpacted	2011	Annual Network Average					6.8	Pass			
	Unimpacted	2007–2011	Five-Year Network Average						7.7	Pass		

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
WCA-2	Impacted	2007	404Z1	1	N/A (33)	N/A					
	Impacted	2007	CA224	1	N/A (7)	N/A					
	Impacted	2007	F1	10	43.4	Fail					
	Impacted	2007	F3	9	16.4	Fail					
	Impacted	2007	F4	12	19.7	Fail					
	Impacted	2007	N1	3	N/A (26.1)	N/A					
	Impacted	2007	Annual Network Average					26.5	Fail		
	Impacted	2008	404Z1	8	27.0	Fail					
	Impacted	2008	CA223	6	25.9	Fail					
	Impacted	2008	CA224	9	8.4	Pass					
	Impacted	2008	F1	20	38.3	Fail					
	Impacted	2008	F3	10	19.3	Fail					
	Impacted	2008	F4	25	14.3	Pass					
	Impacted	2008	N1	9	19.9	Fail					
	Impacted	2008	Annual Network Average					21.9	Fail		
	Impacted	2009	404Z1	6	17.7	Fail					
	Impacted	2009	CA223	4	N/A (15.9)	N/A					
	Impacted	2009	CA224	7	5.8	Pass					
	Impacted	2009	F1	16	38.1	Fail					
	Impacted	2009	F3	10	21.1	Fail					
	Impacted	2009	F4	16	13.3	Pass					
	Impacted	2009	N1	7	13.9	Pass					
	Impacted	2009	Annual Network Average					18.3	Fail		
	Impacted	2010	404Z1	9	21.2	Fail					
	Impacted	2010	CA223	8	21.1	Fail					
	Impacted	2010	CA224	11	6.6	Pass					
	Impacted	2010	F1	11	23.2	Fail					
	Impacted	2010	F3	12	12.1	Pass					
	Impacted	2010	F4	11	10.7	Pass					
	Impacted	2010	N1	11	22.2	Fail					
	Impacted	2010	Annual Network Average					16.7	Fail		
	Impacted	2011	404Z1	7	19.3	Fail					
	Impacted	2011	CA223	7	17.2	Fail					
Impacted	2011	CA224	8	6.2	Pass						

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
WCA-2	Impacted	2011	F1	10	19.1	Fail					
	Impacted	2011	F3	7	14.5	Pass					
	Impacted	2011	F4	8	9.1	Pass					
	Impacted	2011	N1	7	16.9	Fail					
	Impacted	2011	Annual Network Average					14.6	Fail		
	Impacted	2007-2011	Five-Year Network Average							18.7	Fail
	Unimpacted	2007	404C2	4	N/A (13.8)	N/A					
	Unimpacted	2007	CA217	3	N/A (7)	N/A					
	Unimpacted	2007	CA222	3	N/A (6.5)	N/A					
	Unimpacted	2007	CA26	1	N/A (6)	N/A					
	Unimpacted	2007	CA29	10	8.9	Pass					
	Unimpacted	2007	E5	9	4.3	Pass					
	Unimpacted	2007	F5	9	6.7	Pass					
	Unimpacted	2007	U1	10	6.6	Pass					
	Unimpacted	2007	U3	8	5.4	Pass					
	Unimpacted	2007	Annual Network Average					6.4	Pass		
	Unimpacted	2008	404C2	8	8.5	Pass					
	Unimpacted	2008	CA217	10	6.3	Pass					
	Unimpacted	2008	CA222	10	5.8	Pass					
	Unimpacted	2008	CA26	9	5.3	Pass					
	Unimpacted	2008	CA29	15	6.2	Pass					
	Unimpacted	2008	E5	11	6.7	Pass					
	Unimpacted	2008	F5	11	8.7	Pass					
	Unimpacted	2008	U1	14	10.1	Pass					
	Unimpacted	2008	U3	12	7.6	Pass					
	Unimpacted	2008	Annual Network Average					7.2	Pass		
	Unimpacted	2009	404C2	7	8.4	Pass					
	Unimpacted	2009	CA217	8	4.9	Pass					
	Unimpacted	2009	CA222	7	4.4	Pass					
	Unimpacted	2009	CA26	8	4.8	Pass					
	Unimpacted	2009	CA29	12	4.9	Pass					
	Unimpacted	2009	E5	10	5.7	Pass					
Unimpacted	2009	F5	10	8.2	Pass						
Unimpacted	2009	U1	12	8.1	Pass						

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
WCA-2	Unimpacted	2009	U3	12	10.0	Pass					
	Unimpacted	2009	Annual Network Average					6.6	Pass		
	Unimpacted	2010	404C2	9	9.8	Pass					
	Unimpacted	2010	CA217	11	4.5	Pass					
	Unimpacted	2010	CA222	11	4.8	Pass					
	Unimpacted	2010	CA26	10	4.5	Pass					
	Unimpacted	2010	CA29	11	4.7	Pass					
	Unimpacted	2010	E5	14	6.0	Pass					
	Unimpacted	2010	F5	14	5.7	Pass					
	Unimpacted	2010	U1	14	6.0	Pass					
	Unimpacted	2010	U3	11	4.6	Pass					
	Unimpacted	2010	Annual Network Average					5.6	Pass		
	Unimpacted	2011	404C2	4	N/A (6.7)	N/A					
	Unimpacted	2011	CA217	11	5.1	Pass					
	Unimpacted	2011	CA222	9	4.4	Pass					
	Unimpacted	2011	CA26	8	4.5	Pass					
	Unimpacted	2011	CA29	9	4.9	Pass					
	Unimpacted	2011	E5	10	4.6	Pass					
	Unimpacted	2011	F5	9	5.5	Pass					
	Unimpacted	2011	U1	11	5.4	Pass					
Unimpacted	2011	U3	10	4.3	Pass						
Unimpacted	2011	Annual Network Average					4.8	Pass			
Unimpacted	2007–2011	Five-Year Network Average							4.8	Pass	
WCA-3	Impacted	2007	CA314	4	N/A (5.9)	N/A					
	Impacted	2007	CA33	5	N/A (18.2)	N/A					
	Impacted	2007	CA35	4	N/A (10.1)	N/A					
	Impacted	2007	CA36	5	N/A (28.3)	N/A					
	Impacted	2007	Annual Network Average					NA (15.6)	NA		
	Impacted	2008	CA314	11	7.3	Pass					
	Impacted	2008	CA324	1	N/A (14)	N/A					
	Impacted	2008	CA33	7	14.4	Pass					
	Impacted	2008	CA35	5	N/A (8.5)	N/A					
	Impacted	2008	CA36	6	35.7	Fail					
	Impacted	2008	Annual Network Average					19.1	Fail		

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
WCA-3	Impacted	2009	CA314	12	4.3	Pass					
	Impacted	2009	CA324	6	11.1	Pass					
	Impacted	2009	CA33	10	8.7	Pass					
	Impacted	2009	CA35	8	6.9	Pass					
	Impacted	2009	CA36	12	23.3	Fail					
	Impacted	2009	Annual Network Average					10.8	Pass		
	Impacted	2010	CA314	12	4.5	Pass					
	Impacted	2010	CA324	5	N/A (12.5)	N/A					
	Impacted	2010	CA33	8	8.8	Pass					
	Impacted	2010	CA35	5	N/A (7.1)	N/A					
	Impacted	2010	CA36	8	23.6	Fail					
	Impacted	2010	Annual Network Average					12.3	Fail		
	Impacted	2011	CA314	10	4.0	Pass					
	Impacted	2011	CA324	4	N/A (10.4)	N/A					
	Impacted	2011	CA33	7	7.5	Pass					
	Impacted	2011	CA35	6	5.6	Pass					
	Impacted	2011	CA36	9	22.0	Fail					
	Impacted	2011	Annual Network Average					9.8	Pass		
	Impacted	2007 - 2011	Five-Year Network Average							12.5	Fail
	Unimpacted	2007	3ASMESO	9	7.0	Pass					
	Unimpacted	2007	CA311	11	7.4	Pass					
	Unimpacted	2007	CA315	16	7.7	Pass					
	Unimpacted	2007	CA316	11	9.3	Pass					
	Unimpacted	2007	CA319	4	N/A (8.2)	N/A					
	Unimpacted	2007	CA32	6	9.4	Pass					
	Unimpacted	2007	CA325	1	N/A (8)	N/A					
	Unimpacted	2007	CA34	5	N/A (12.6)	N/A					
	Unimpacted	2007	CA38	6	6.1	Pass					
	Unimpacted	2007	CA39	4	N/A (5.7)	N/A					
	Unimpacted	2007	CA3B1	3	N/A (5.5)	N/A					
	Unimpacted	2007	CA3B2	3	N/A (5)	N/A					
	Unimpacted	2007	S345B6	8	12.3	Pass					
Unimpacted	2007	Annual Network Average					8.5	Pass			
Unimpacted	2008	3ASMESO	12	7.4	Pass						

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail		
WCA-3	Unimpacted	2008	CA311	15	6.8	Pass						
	Unimpacted	2008	CA315	15	8.0	Pass						
	Unimpacted	2008	CA316	13	10.8	Pass						
	Unimpacted	2008	CA319	10	6.8	Pass						
	Unimpacted	2008	CA32	7	7.5	Pass						
	Unimpacted	2008	CA325	6	5.6	Pass						
	Unimpacted	2008	CA34	7	15.2	Pass						
	Unimpacted	2008	CA38	11	6.7	Pass						
	Unimpacted	2008	CA39	10	6.8	Pass						
	Unimpacted	2008	CA3B1	10	6.0	Pass						
	Unimpacted	2008	CA3B2	8	7.6	Pass						
	Unimpacted	2008	S345B6	11	7.5	Pass						
		Unimpacted	2008	Annual Network Average					7.9	Pass		
	Unimpacted	2009	3ASMESO	12	4.6	Pass						
	Unimpacted	2009	CA311	15	4.9	Pass						
	Unimpacted	2009	CA315	16	5.0	Pass						
	Unimpacted	2009	CA316	16	6.4	Pass						
	Unimpacted	2009	CA319	12	4.5	Pass						
	Unimpacted	2009	CA32	12	5.9	Pass						
	Unimpacted	2009	CA325	7	4.6	Pass						
	Unimpacted	2009	CA34	13	7.2	Pass						
	Unimpacted	2009	CA38	13	4.9	Pass						
	Unimpacted	2009	CA39	11	4.8	Pass						
	Unimpacted	2009	CA3B1	10	3.6	Pass						
	Unimpacted	2009	CA3B2	11	4.6	Pass						
	Unimpacted	2009	S345B6	12	4.7	Pass						
		Unimpacted	2009	Annual Network Average					5.1	Pass		
	Unimpacted	2010	3ASMESO	12	4.1	Pass						
	Unimpacted	2010	CA311	10	4.0	Pass						
	Unimpacted	2010	CA315	10	4.3	Pass						
	Unimpacted	2010	CA316	10	6.4	Pass						
	Unimpacted	2010	CA319	11	4.7	Pass						
	Unimpacted	2010	CA32	11	4.9	Pass						
	Unimpacted	2010	CA325	11	4.6	Pass						

Area	Criterion Network	Water Year	Site	Sample Size (n)	Annual Site Geometric Mean	≤ 15 Pass/ Fail	Network Annual Average Geometric Mean	≤ 11 Pass/ Fail	Network Five-Year Average Geometric Mean	≤ 10 Pass/ Fail	
WCA-3	Unimpacted	2010	CA34	10	7.0	Pass					
	Unimpacted	2010	CA38	9	4.4	Pass					
	Unimpacted	2010	CA39	11	4.9	Pass					
	Unimpacted	2010	CA3B1	10	3.4	Pass					
	Unimpacted	2010	CA3B2	11	4.4	Pass					
	Unimpacted	2010	S345B6	11	3.6	Pass					
	Unimpacted	2010	Annual Network Average					4.7	Pass		
	Unimpacted	2011	3ASMESO	9	3.5	Pass					
	Unimpacted	2011	CA311	10	4.3	Pass					
	Unimpacted	2011	CA315	11	4.3	Pass					
	Unimpacted	2011	CA316	10	6.0	Pass					
	Unimpacted	2011	CA319	10	4.4	Pass					
	Unimpacted	2011	CA32	7	4.8	Pass					
	Unimpacted	2011	CA325	6	4.6	Pass					
	Unimpacted	2011	CA34	8	5.4	Pass					
	Unimpacted	2011	CA38	8	3.5	Pass					
	Unimpacted	2011	CA39	8	4.3	Pass					
	Unimpacted	2011	CA3B1	9	3.2	Pass					
	Unimpacted	2011	CA3B2	10	3.3	Pass					
	Unimpacted	2011	S345B6	10	3.0	Pass					
	Unimpacted	2011	Annual Network Average					4.2	Pass		
	Unimpacted	2007–2011	Five-Year Network Average							5.8	Pass

N/A – Mean calculation not applicable

Refuge – Arthur R. Marshall Loxahatchee National Wildlife Refuge

WCA-2 – Water Conservation Area 2

WCA-3 – Water Conservation Area 3